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State Incentives to Increase Efficiencies in Urban Water Supply in Maharashtra

Improving the efficiency of existing water and sewerage systems is a cost-effective way for municipalities to improve these services and extend them to all residents, including the poor. Greater efficiencies in conserving energy, reducing leaks, collecting tariffs, and leveraging state funds help cities meet their immediate water demand. These changes also position municipalities to mobilize resources for sustainable projects to rehabilitate and augment existing public works. This Project Note describes Maharashtra's efforts to help municipalities increase their efficiency in water supply and sewerage service delivery and enhance private sector participation through a new incentive grants program being used by Sangli-Miraj-Kupwad Municipal Corporation.

Many studies, such as the Sukthankar Committee Report, have documented the need for improved water and sewerage services in Maharashtra's cities and others in India. The state government provides grants and loan guarantees to urban local bodies (ULBs) for new water supply projects. Consequently, many augmentation projects have been initiated to meet the water demands of a growing population. However, inadequate attention is given to operations and maintenance (O&M), customer service, water leakage, unauthorized connections, theft, and energy conservation of existing systems. As a result, unaccounted for water (UFW), the difference between the amount of water produced and supplied to the distribution system and the amount sold, is a large portion of the total quantity of water supply. UFW is estimated to range from 50 to 65 percent in the state.

Financial analyses have shown that local bodies' expenditure on O&M for water is more than revenue earned from water tariffs, and UFW is the major reason for this. Also, about 50 to 60 percent of the water system's operational costs are for energy—for electricity and fuel to pump water from intake to treatment plants to customers.

Reducing Water and Energy Losses

Reducing costs and increasing revenues by operating more efficiently enables municipalities to obtain resources to invest in rehabilitating existing works and building new ones. Three tools help local officials assess the situation and plan improvements, especially if the studies conclude with specific, prioritized recommendations and an action plan geared to implementation.

- *Leak detection surveys* identify leaks in transmission pipelines and throughout the distribution system. They help officials to design leak reduction programs to stop leaks that waste or contaminate treated water. They also help officials to develop a plan for maintenance and repairs, to improve connections to consumers, and to improve water quality.
- *Water audits* measure production and use of water, and include enumeration of all consumers (registered and unregistered), a map of the distribution network, measurement of water flow, and a check of the functioning of water meters. Officials can use them to help create citizen awareness of the need to conserve water, improve water billing and collection,

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locate water theft, regularize unauthorized connections, control unrecorded water, increase meter use, and keep accurate records of water use.

- *Energy audits* include an inspection of energy consumption and of pumping stations and how efficiently they use energy. The audits identify energy saving measures and their costs. Suitable energy conservation measures can reduce energy costs between 25 and 40 percent.

In September 2000, the state government directed that its municipal corporations and class A cities (cities with more than 100,000 residents) undertake these assessments and develop action plans to reduce unaccounted for water and bring about energy conservation, either with their own staff or with technical service providers approved by the state. In the same resolution, the state announced a restructured capital grants program and directed these cities to encourage private sector participation in the sector and introduce a double-entry accrual-based accounting system.[1] Five subsequent government resolutions contained guidelines and procedures to implement the new capital grants program.[2]

Restructuring the Capital Grants and Guarantees to Create Incentives for Reform

The state government wanted to provide incentives for municipalities to improve the efficiency of their water and sewerage services and to encourage private sector participation. It decided to restructure the program of capital grants and state government guarantees for loans for water supply schemes. In the past, the state water board, the Maharashtra Jeevan Pradhikaran, built new works using capital grants and loans from domestic financial institutions—such as the Life Insurance Corporation of India and HUDCO—which were guaranteed by the state, and turned them over to ULBs. With decentralization, the ULBs are now responsible for capital works as well as O&M.

The restructured capital grants are divided into two parts: 30 percent of the total is for Initiative Incentive Grants. These grants allow ULBs to conduct water

[1] *Incentives to ULBs for Water Audit, Energy Audit, Water Leakage Detection and Reduction and Private Sector Participation*, issued by the Government of Maharashtra Water Supply and Sanitation Department, September 27, 2000.

[2] *Procedures and Guidelines for Water Audit, Energy Audit, and Reduction of Unaccounted for Water*, March 21, 2001; *Guidelines for Private Sector Participation in Increasing Performance and Investments for Water Supply and Sewerage*, June 12, 2001; *Financing Patterns for Water Audit, Energy Audit, Leak Detection and Rehabilitation Schemes*, November 3, 2001; *Administrative Approval and Government Grant-in aid to the Program of Water Audit, Energy Audit and Water Leakage Detection of the Sangli-Miraj-Kupwad Scheme*, December 3, 2001; *Approved List of Technical Service Providers for…Water Audit, Energy Audit, Water Leakage Detection, Leakage Conservation and Energy Conservation of Water Supply Schemes*, January 17, 2002.

Sangli, the First Municipal Corporation to Access the Incentive Grants

The cities of Sangli, Miraj, and Kupwad merged into one municipal corporation in 1998. Located on the banks of the Krishna River in southern Maharashtra, Sangli is a major business center. The present population is estimated at 450,000, including 31,000 slum residents. The existing water and sewerage systems are more than 40 years old and no new schemes have been undertaken in nearly 20 years. Poor water quality, a main concern of residents, is due to inadequate sewage collection, treatment, and disposal, as well as the dilapidated water supply network and facilities.

The USAID FIRE project is supporting the Sangli-Miraj-Kupwad Municipal Corporation as a model for medium-sized cities for improvement of service delivery. The FIRE project is undertaking a comprehensive program of technical support to the city in the areas of PSP in water and sewerage, accounting reforms, energy/water/leak detection audits, solid waste management, resource mobilization, and improved service access to the poor. The city is implementing an accrual accounting system and computerizing its records. It has introduced area-based property tax assessments for new properties and issued service contracts for solid waste collection.

The Sukthankar Committee visited the city to discuss the need for reforms in the water sector with officials. At a workshop in Pune in February 2000, corporation officials decided to work with FIRE and Infrastructure Leasing & Financial Services Ltd (IL&FS) to develop a demonstration water supply and sewerage project with PSP. The general body unanimously approved this new approach later that year. The first phase of the project proposes reduction of leaks and energy savings, improved O&M practices, customer service, staff training, and preparation for second-phase investments. The first phase will be implemented through a three-year management contract. The second phase consists of attracting investments to augment the service, and will be implemented through a long-term contract such as a concession that will use a special purpose vehicle jointly operated by the corporation and IL&FS.

The corporation applied to the state government for a grant under the restructured capital grants program. The state government announced its support for the first phase in December 2001. The state will provide an Incentive Grant of Rs. 60 million (US$ 1.25 million) to cover 75 percent of the management contract cost. It is expected that the state will award another grant to cover 23.3 percent of the system rehabilitation costs. The corporation entered into an agreement with IL&FS to support the city in the development of the project on February 2, 2002. The corporation met private sector water operators to discuss development options the following week and will begin the bidding process soon. The corporation's proposal played an important role in the state's formulation of government resolutions to implement the new Incentive Grants program.

audits, energy audits, and leak detection studies and support implementation of recommendations based on these studies. The state laid out procedures for these audits and programs in March 2001.

The other 70 percent of the capital grants program is for capital works, as before. But now this portion of the capital grants and all loan guarantees are conditioned upon the cities preparing a "time-bound" action plan and having taken effective steps toward completing a water audit, an energy audit, and taking measures to reduce water leakage.

The state government detailed the financing patterns of the Incentive Grants in a November 2001 resolution that set up the program on an experimental basis from 2002 to 2005. The grants can be used for audits and for system rehabilitation.

Funding of Water, Energy, and Leakage Audits

Urban Local Body	State Grant Share	Local Body Share
Municipal Corporations	75%	25%
Class A Municipal Councils	75%	25%

The state will provide a grant of 75 percent of the costs of a water audit, energy audit, and leak detection survey; the local body is required to provide 25 percent of the audit costs. Municipal corporations should carry out these studies within three years and municipal councils within two years. Grants will cover procurement of essential equipment, including computers, consultant services, and staff training to conduct these audits on an ongoing basis. The urban body may use a consultant from the approved Technical Service Providers (TSP) list.[3] The city must spend its 25 percent share first, and the state will pay in installments based on progress, with the final 20 percent payment coming after a satisfactory review by the state.

Financing of System Rehabilitation

Urban Local Body	State Grant Share	Local Body Share
Municipal Corporations	23.3%	76.7%
Class A Municipal Councils	25%	75%

The urban body, with the help of the TSP, will propose rehabilitation works that are needed to take care of the deficiencies and improve efficiency, based on the findings of the audits. For municipal corporations, the state will provide 23.3 percent of the rehabilitation costs in grant funds; for municipal councils, 25 percent. The local body will raise the remainder, most likely from a combination of its own revenues, loans, or from the market. Eligible activities include public stand posts, repairs and replacement of damaged meters and pipe connections, improvement in operation of water treatment plants, repairs and replacement of old pumps and motors to conserve energy, and creation of an effective system for water billing and collection, including the purchase of computers. Routine maintenance and repair works are not eligible for Incentive Grants. The TSP will assist the city through the competitive bidding process and monitor the firm undertaking the rehabilitation work, but the responsibility for ensuring completion lies with the ULB. Eighty percent of the state grants will be released to the urban body based on work progress. The final twenty percent, however, will be released only after the state ascertains that the anticipated water and energy savings and increase in revenue have actually been achieved.

Encouraging Private Sector Participation

The state issued guidelines for private sector participation (PSP) to increase performance and investments for water supply and sewerage in June 2001. The resolution noted that traditionally the state commissioned construction of water supply schemes and turned them over to ULBs for operation and maintenance. When O&M is not done properly, losses result in the breakdown of the works, which is followed by a request to the state to build a new scheme. PSP can help cities make efficiency improvements that mobilize internal and external resources, and thus leverage state funds to help break this vicious cycle.

There are many aspects of existing schemes that can be managed more efficiently through PSP, e.g., metering, billing, collection, O&M, and repairs of the distribution system. Before entrusting water supply projects to private operators and deciding what type of contract is best, many factors should be carefully weighed. Three options for private sector participation are:

- *Management contract* for three to five years. The private operator will be responsible for managing the existing water supply system and employees, and its payments are linked to performance. Sharing profits can be an incentive to the operator to exceed stated goals in billing and collection, reducing UFW, and saving energy. The ULB is responsible for making investments and rehabilitating the system.
- *Lease contract* for six to ten years. The operator is responsible for incurring expenses for O&M and repairs, collection of water charges, and minor equipment and pipeline replacements. The ULB should have fixed an appropriate water tariff before entering into the contract and the operator

[3] Published in a *Government Resolution* on January 17, 2002, following advertisement for pre-qualification of technical service providers in June 2001.

should pay a lease fee for using the water supply. The ULB will be responsible for making new investments in the system.

- *Concession contract* for 20 to 30 years. The contractor is responsible for new investment, as well as O&M. The tariff setting mechanism is defined in the contract to ensure the contractor adequate revenues. The contractor will turn over the system to the ULB at the end of the contract.

The ULB should invite competitive bids when selecting private organizations. The state guidelines detail a format for the bid documents and describe how they should be advertised and evaluated. A timetable of progress and a report on performance should be included in the terms of the contracts. To ensure transparency, officials should consult with elected representatives, consumer associations, experts in the field, and the private operator throughout the process. The guidelines conclude with a list of the responsibilities of the private contractor and ULB during the contract period.

Conclusion

Maharashtra has led the way in state efforts to reform water supply and sewerage services. Its efforts to provide urban bodies with incentives to meet rising water demand by more efficient operations, through its restructured capital grants program, promises to benefit participating cities and their residents. The Sukthankar Committee Report set a road map for the future of water services in the state. The report also proposed a new regulatory framework to improve service standards for water and sewerage and a more equitable and effective way of determining water user fees. The Initiative Incentive Grants will complement the proposed regulatory framework and will help local bodies implement the new road map.

This *Project Note* is based on six *Government Resolutions* issued by the Government of Maharashtra, Water Supply and Sewerage Department, from September 27, 2000 to January 17, 2002. V. Satyanarayana and Kirti Devi of the FIRE project provided technical support to the Sukthankar Committee and GOM. The resolutions and report are available from WSSD in Mumbai, the FIRE office in New Delhi, and TCGI in Washington, DC. All *Project Notes* are available online at www.dec.org.

The mission of the Indo-US FIRE(D) Project is to institutionalize the delivery of commercially viable urban environmental infrastructure and services at the local, state and national levels. Since 1994, the Project has been working to support the development of demonstration projects and of a sustainable urban infrastructure finance system. Now, the Project is also pursuing this mission through:

- Expansion of the roles of the private sector, NGOs and CBOs in the development, delivery, operation and maintenance of urban environmental infrastructure;
- Increased efficiency in the operation and maintenance of existing water supply and sewerage systems;
- Strengthened financial management systems at the local level;
- Development of legal and regulatory frameworks at the state level;
- Continued implementation of the 74th Constitutional Amendment; and
- Capacity-building through the development of an Urban Management Training Network.

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